

Remarks

Regarding paragraphs 1, 2, and 3 of the Examiner's detailed action, amended drawings, abstract and claims have been filed which meet these objections.

Turning to paragraphs 4 and 5 of the Examiner's detailed action, all relevant claims have been amended such that the "splitters or couplers" are now "periodic interleaving filters".

The Examiner rejects claims 4 and 5 under 35 USC 103(a) as being obvious over Sakata et al (US 6,414,768) in view of Huang et al (US 6,160,932). This objection is the sole issue that governs allowance of the claims currently pending.

Sakata teaches a passive optical network (PON) system having optical star couplers. As admitted by the Examiner, Sakata fails to teach that the couplers are periodic interleaving filters. Applicants accept that Huang teaches wavelength division multiplexer (WDM) devices constructed from a number of Mach- Zehnder Interferometers which multiplex wavelengths in a similar manner to periodic interleaving filters. However it is pointed out that Huang et al describes single WDM devices and not network architectures. In short, Huang et al describes a single component. Applicants cleverly realized that by taking a single component, a periodic interleaving filter, and "spreading it out" over a wider area to form a network, it would be possible to provide a low cost ring topology optical network. This is not suggested by Sakata or Huang whether individually or in combination.

Furthermore, Applicants deny that one of ordinary skill in the art would have simply replaced the optical star couplers of Sakata with the wavelength division multiplexers of Huang. The PON described in Sakata specifically uses optical star couplers and would not function if these were replaced with multiplexers. Even if Sakata teaches using a plurality of wavelengths (which is denied) it can easily be seen, from the

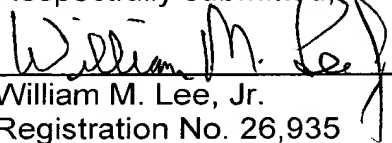
architecture of figure 5, that by replacing optical star couplers 7 with multiplexers, communication between the OLT and ONUs further away from the OLT would no longer be possible. By multiplexing wavelengths instead of coupling them, fewer and fewer wavelengths would reach the further distant ONUs. Thus, the PON architecture would no longer work.

The Examiner argues that one of ordinary skill in the art would have recognized the advantages of "allowing selecting the wanted signals, and eliminating the unwanted signals, reducing the signal noise, increasing the signal to noise ration, reducing the loss of the signals when the signals routed around the network, and reducing cost of the whole system". Applicants strongly deny this. Starting with the teaching of Sakata, one of ordinary skill in the art would not consider using the multiplexers of Huang, irrespective of their abilities, simply because they would not work. Applicants submit that this type of reasoning by the Examiner is an example of impermissible hindsight reasoning. The Examiner must show a positive case of why one of ordinary skill in the art would combine the references and not simply work backwards from the advantages described in the present application.

Applicants therefore request favorable reconsideration of the claims as currently amended.

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Respectfully submitted,



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